

**Warning**



### SECTION 1: Identification of the substance/mixture and of the company/undertaking

#### 1.1. Product identifier

Trade name : Sulphur hexafluoride  
SDS no : 2015308  
Other means of identification : Sulphur hexafluoride  
CAS-No. : 2551-62-4  
EC-No. : 219-854-2  
EC Index-No. : ---  
REACH registration No : 01-2119458769-17  
Chemical formula : SF<sub>6</sub>

#### 1.2. Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses : Industrial use. Perform risk assessment prior to use.  
Test gas/Calibration gas.  
Chemical reaction / Synthesis.  
Laboratory use.  
Use for manufacture of electronic/photovoltaic components.

Uses advised against : Consumer use.  
Do not inhale product on purpose because of the risk of asphyxiation.  
Uses other than those listed above are not supported, contact your supplier for more information on other uses.

#### 1.3. Details of the supplier of the safety data sheet

Company identification : AIR LIQUIDE SINGAPORE PTE LTD  
HEAD OFFICE : 2 VENTURE DRIVE, VISION EXCHANGE, #22-28, SINGAPORE 608526  
T +65 6265 3788, F +65 6 265 1441  
[Sg-info@airliquide.com](mailto:Sg-info@airliquide.com), <https://sg.airliquide.com/resources/safety-data-sheets-sds>

#### 1.4. Emergency telephone number

Emergency telephone number : +65 6265 3788, +65 9619 9229 (After Office Hour)

### SECTION 2: Hazards identification

#### 2.1. Classification of the substance or mixture

##### Classification according to Regulation (EC) No. 1272/2008 [CLP]

Physical hazards Gases under pressure : Liquefied gas H280

## 2.2. Label elements

### Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP)



GHS04

Signal word (CLP)

: Warning

Hazard statements (CLP)

: H280 - Contains gas under pressure; may explode if heated.

Precautionary statements (CLP)

- Storage

: P403 - Store in a well-ventilated place.

Supplemental information

: Asphyxiant in high concentrations.  
Contains fluorinated greenhouse gases listed in Regulation 2024/573.  
Do not inhale product on purpose because of the risk of asphyxiation.

## 2.3. Other hazards

: Asphyxiant in high concentrations.  
Contact with liquid may cause cold burns/frostbite.  
Not classified as PBT or vPvB.  
The substance/mixture has no endocrine disrupting properties.

## SECTION 3: Composition/information on ingredients

### 3.1. Substances

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Sulphur hexafluoride	CAS-No.: 2551-62-4 EC-No.: 219-854-2 EC Index-No.: --- REACH registration No: 01-2119458769-17	100	Press. Gas (Liq.), H280

Contains no other components or impurities which will influence the classification of the product.

### 3.2. Mixtures

Not applicable

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

- Inhalation : Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Perform cardiopulmonary resuscitation if breathing stopped.
- Skin contact : In case of frostbite spray with water for at least 15 minutes. Apply a sterile dressing. Obtain medical assistance.
- Eye contact : Immediately flush eyes thoroughly with water for at least 15 minutes.
- Ingestion : Ingestion is not considered a potential route of exposure.

**4.2. Most important symptoms and effects, both acute and delayed**

: In high concentrations may cause asphyxiation. Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation.  
See section 11.

**4.3. Indication of any immediate medical attention and special treatment needed**

: None.

**SECTION 5: Firefighting measures****5.1. Extinguishing media**

- Suitable extinguishing media : Water spray or fog.  
Product does not burn, use fire control measures appropriate for the surrounding fire.
- Unsuitable extinguishing media : Do not use water jet to extinguish.

**5.2. Special hazards arising from the substance or mixture**

- Specific hazards : Exposure to fire may cause containers to rupture/explode.
- Hazardous combustion products : Hydrogen fluoride. Sulphur dioxide.

**5.3. Advice for firefighters**

- Specific methods : Use fire control measures appropriate for the surrounding fire. Exposure to fire and heat radiation may cause gas receptacles to rupture. Cool endangered receptacles with water spray jet from a protected position. Prevent water used in emergency cases from entering sewers and drainage systems.  
If possible, stop flow of product.  
Use water spray or fog to knock down fire fumes if possible.  
Move containers away from the fire area if this can be done without risk.
- Special protective equipment for fire fighters : In confined space use self-contained breathing apparatus.  
Standard protective clothing and equipment (Self Contained Breathing Apparatus) for fire fighters.  
Standard EN 469 - Protective clothing for firefighters. Standard - EN 659: Protective gloves for firefighters. EN 15090 Footwear for firefighters. EN 443 Helmets for fire fighting in buildings and other structures.  
Standard EN 137 - Self-contained open-circuit compressed air breathing apparatus with full face mask.

**SECTION 6: Accidental release measures****6.1. Personal precautions, protective equipment and emergency procedures**

- For non-emergency personnel : Act in accordance with local emergency plan.  
Try to stop release.  
Evacuate area.  
Ensure adequate air ventilation.  
Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.  
Stay upwind.  
See section 8 of the SDS for more information on personal protective equipment
- For emergency responders : Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe.  
Oxygen detectors should be used when asphyxiating gases may be released.  
See section 5.3 of the SDS for more information.

**6.2. Environmental precautions**

: Try to stop release.

**6.3. Methods and material for containment and cleaning up**

: Ventilate area.

**6.4. Reference to other sections**

: See also sections 8 and 13.

**SECTION 7: Handling and storage****7.1. Precautions for safe handling**

Safe use of the product

: The product must be handled in accordance with good industrial hygiene and safety procedures.  
Only experienced and properly instructed persons should handle gases under pressure.  
Consider pressure relief device(s) in gas installations.  
Ensure the complete gas system was (or is regularly) checked for leaks before use.  
Do not smoke while handling product.  
Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt.  
Avoid suck back of water, acid and alkalis.  
Do not breathe gas.  
Avoid release of product into work area.

Safe handling of the gas receptacle

: Containers should be stored in the vertical position and properly secured to prevent them from falling over.  
Refer to supplier's container handling instructions.  
Do not allow backfeed into the container.  
Protect containers from physical damage; do not drag, roll, slide or drop.  
When moving cylinders, even for short distances, use a cart (trolley, hand truck, etc.) designed to transport cylinders.  
Leave valve protection caps in place until the container has been secured against either a wall or bench or placed in a container stand and is ready for use.  
If user experiences any difficulty operating valve discontinue use and contact supplier.  
Never attempt to repair or modify container valves or safety relief devices.  
Damaged valves should be reported immediately to the supplier.  
Keep container valve outlets clean and free from contaminants particularly oil and water.  
Replace valve outlet caps or plugs and container caps where supplied as soon as container is disconnected from equipment.  
Close container valve after each use and when empty, even if still connected to equipment.  
Never attempt to transfer gases from one cylinder/container to another.  
Never use direct flame or electrical heating devices to raise the pressure of a container.  
Do not remove or deface labels provided by the supplier for the identification of the content of the container.  
Suck back of water into the container must be prevented.  
Open valve slowly to avoid pressure shock.

**7.2. Conditions for safe storage, including any incompatibilities**

- : Observe all regulations and local requirements regarding storage of containers.
- Containers should not be stored in conditions likely to encourage corrosion.
- Container valve guards or caps should be in place.
- Containers should be stored in the vertical position and properly secured to prevent them from falling over.
- Stored containers should be periodically checked for general condition and leakage.
- Keep container below 50°C in a well ventilated place.
- Store containers in location free from fire risk and away from sources of heat and ignition.
- Keep away from combustible materials.

**7.3. Specific end use(s)**

: None.

**SECTION 8: Exposure controls/personal protection**

**8.1. Control parameters**

Sulphur hexafluoride (2551-62-4)	
USA - ACGIH - Occupational Exposure Limits	
Local name	Sulfur hexafluoride
ACGIH OEL TWA	1000 ppm
Remark (ACGIH)	Asphyxia
Regulatory reference	ACGIH 2017

Sulphur hexafluoride (2551-62-4)	
DNEL: Derived no effect level (Workers)	
Long-term - local effects, inhalation	77900 mg/m <sup>3</sup>
Long-term - systemic effects, inhalation	77900 mg/m <sup>3</sup>

Sulphur hexafluoride (2551-62-4)	
PNEC: Predicted no effect concentration	
Aqua (freshwater)	0.15 mg/l
Aqua (marine water)	1.5 mg/l

**8.2. Exposure controls**

**8.2.1. Appropriate engineering controls**

- : Provide adequate general and local exhaust ventilation.
- Oxygen detectors should be used when asphyxiating gases may be released.
- Systems under pressure should be regularly checked for leakages.
- Ensure exposure is below occupational exposure limits (where available).
- Consider the use of a work permit system e.g. for maintenance activities.

**8.2.2. Individual protection measures, e.g. personal protective equipment**

- : A risk assessment should be conducted and documented in each work area to assess the risks related to the use of the product and to select the PPE that matches the relevant risk. The following recommendations should be considered:  
PPE compliant to the recommended EN/ISO standards should be selected.
- Eye/face protection : Wear goggles when transfilling or breaking transfer connections.  
Standard EN 166 - Personal eye-protection - specifications.
  - Skin protection
    - Hand protection : Wear cold insulating gloves when transfilling or breaking transfer connections.  
Standard EN 511 - Cold insulating gloves.  
Wear working gloves when handling gas containers.  
Standard EN 388 - Protective gloves against mechanical risks, performance level 1 or higher. Recommended types include wrist gloves from leather or synthetic material with equivalent performance, fabric gloves, fabric gloves with leather palms.
    - Other : Wear safety shoes while handling containers.  
Standard EN ISO 20345 - Personal protective equipment - Safety footwear.
  - Respiratory protection : Self contained breathing apparatus (SCBA) or positive pressure airline with mask are to be used in oxygen-deficient atmospheres.  
Never use any kind of filtering respiratory protection equipment when working with this substance due to it having poor or no warning properties.  
Self contained breathing apparatus is recommended, where unknown exposure may be expected, e.g. during maintenance activities on installation systems.  
Standard EN 137 - Self-contained open-circuit compressed air breathing apparatus with full face mask.  
Consult respiratory device supplier's product information for the selection of the appropriate device.
  - Thermal hazards : None in addition to the above sections.

### 8.2.3. Environmental exposure controls

- : Refer to local regulations for restriction of emissions to the atmosphere. See section 13 for specific methods for waste gas treatment.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Appearance	
- Physical state at 20°C / 101.3kPa	: Gas.
- Colour	: Colourless.
Odour	: Odourless.
Melting point / Freezing point	: -50.8 °C -50.8 °C
Boiling point	: -64 °C
Flammability	: Non flammable.
Lower explosion limit	: Not applicable.
Upper explosion limit	: Not applicable.
Flash point	: Not applicable for gases and gas mixtures.
Auto-ignition temperature	: Non flammable.
Decomposition temperature	: Not applicable.
pH	: Not applicable for gases and gas mixtures.
Viscosity, kinematic	: No reliable data available.
Water solubility [20°C]	: 41 mg/l
Partition coefficient n-octanol/water (Log Kow)	: 1.68
Vapour pressure [20°C]	: 21 bar(a)
Vapour pressure [50°C]	: Not applicable.

Density and/or relative density	: Not applicable for gases and gas mixtures.
Relative vapour density (air=1)	: 5
Particle characteristics	: Not applicable for gases and gas mixtures. Nanoforms are not relevant for gases and gas mixtures.

## **9.2. Other information**

### **9.2.1. Information with regard to physical hazard classes**

Explosive properties	: Not applicable.
Explosion limits	: Non flammable.
Oxidising properties	: Not applicable.
Critical temperature [°C]	: 45.5 °C

### **9.2.2. Other safety characteristics**

Molar mass	: 146 g/mol
Evaporation rate	: Not applicable for gases and gas mixtures.
Gas group	: Press. Gas (Liq.).
Other data	: Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level.

## **SECTION 10: Stability and reactivity**

### **10.1. Reactivity**

: No reactivity hazard other than the effects described in sub-sections below.

### **10.2. Chemical stability**

: Stable under normal conditions.

### **10.3. Possibility of hazardous reactions**

: None.

### **10.4. Conditions to avoid**

: Avoid moisture in installation systems.

### **10.5. Incompatible materials**

: For additional information on compatibility refer to ISO 11114.

### **10.6. Hazardous decomposition products**

: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## **SECTION 11: Toxicological information**

### **11.1. Information on toxicological effects**

<b>Acute toxicity</b>	: Toxicological effects not expected by inhalation from this product if occupational exposure limit values are not exceeded.
<b>Skin corrosion/irritation</b>	: No reliable data available.
<b>Serious eye damage/irritation</b>	: No reliable data available.
<b>Respiratory or skin sensitisation</b>	: No reliable data available.
<b>Germ cell mutagenicity</b>	: No reliable data available.
<b>Carcinogenicity</b>	: No reliable data available.
<b>Toxic for reproduction : Fertility</b>	: No reliable data available.
<b>Toxic for reproduction : unborn child</b>	: No reliable data available.
<b>STOT-single exposure</b>	: No reliable data available.
<b>STOT-repeated exposure</b>	: No reliable data available.
<b>Aspiration hazard</b>	: Not applicable for gases and gas mixtures.

**11.2. Information on other hazards**

Other information : The substance/mixture has no endocrine disrupting properties.

**SECTION 12: Ecological information****12.1. Toxicity**

Assessment : Classification criteria are not met.

EC50 48h - Daphnia magna [mg/l] : 247 mg/l

EC50 72h - Algae [mg/l] : No data available.

LC50 96 h - Fish [mg/l] : 236 mg/l

**12.2. Persistence and degradability**

Assessment : Not applicable for inorganic products.

**12.3. Bioaccumulative potential****12.4. Mobility in soil**

Assessment : Because of its high volatility, the product is unlikely to cause ground or water pollution.  
Partition into soil is unlikely.

**12.5. Results of PBT and vPvB assessment**

Assessment : Not classified as PBT or vPvB.

**12.6. Endocrine disrupting properties**

Assessment : The substance/mixture has no endocrine disrupting properties.

**12.7. Other adverse effects**

Other adverse effects : No known effects from this product.

Effect on the ozone layer : No effect on the ozone layer.

Global warming potential [CO<sub>2</sub>=1] : 22800

Effect on global warming : Contains fluorinated greenhouse gases listed in Regulation 2024/573.  
When discharged in large quantities may contribute to the greenhouse effect.  
For quantities refer to cylinder label.

**SECTION 13: Disposal considerations****13.1. Waste treatment methods**

: Refer to supplier's waste gas recovery programme.  
Contact supplier if guidance is required.  
Discharge to atmosphere in large quantities should be avoided.  
Do not discharge into any place where its accumulation could be dangerous.  
Ensure that the emission levels from local regulations or operating permits are not exceeded.  
Refer to the EIGA code of practice Doc.30 "Disposal of Gases", downloadable at <http://www.eiga.eu> for more guidance on suitable disposal methods.  
Return unused product in original container to supplier.

List of hazardous waste codes (from Commission Decision 2000/532/EC as amended) : 16 05 05 : Gases in pressure containers other than those mentioned in 16 05 04.

**13.2. Additional information**



: External treatment and disposal of waste should comply with applicable local and/or national regulations.

**SECTION 14: Transport information**

**14.1. UN number**

UN-No. : 1080

**14.2. UN proper shipping name**

Transport by road/rail/inland waterways (ADR/RID/ADN) : SULPHUR HEXAFLUORIDE

Transport by air (ICAO-TI / IATA-DGR) : Sulphur hexafluoride

Transport by sea (IMDG) : SULPHUR HEXAFLUORIDE

**14.3. Transport hazard class(es)**

Labelling :



2.2 : Non-flammable, non-toxic gases.

Transport by road/rail/inland waterways (ADR/RID/ADN)

Class : 2

Classification code : 2A

Hazard identification number : 20

Tunnel Restriction : C/E - Tank carriage: Passage forbidden through tunnels of category C, D and E. Other carriage: Passage forbidden through tunnels of category E

Transport by air (ICAO-TI / IATA-DGR)

Class / Div. (Sub. risk(s)) : 2.2

Transport by sea (IMDG)

Class / Div. (Sub. risk(s)) : 2.2

Emergency Schedule (EmS) - Fire : F-C

Emergency Schedule (EmS) - Spillage : S-V

**14.4. Packing group**

Transport by road/rail/inland waterways (ADR/RID/ADN) : Not applicable

Transport by air (ICAO-TI / IATA-DGR) : Not applicable

Transport by sea (IMDG) : Not applicable

**14.5. Environmental hazards**

Transport by road/rail/inland waterways (ADR/RID/ADN) : None.

Transport by air (ICAO-TI / IATA-DGR) : None.

Transport by sea (IMDG) : None.

**14.6. Special precautions for user**

Packing Instruction(s)

Transport by road/rail/inland waterways (ADR/RID/ADN) : P200

Transport by air (ICAO-TI / IATA-DGR)

Passenger and Cargo Aircraft : 200.

Cargo Aircraft only : 200.

Transport by sea (IMDG) : P200

Special transport precautions : Avoid transport on vehicles where the load space is not separated from the driver's compartment.  
Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency.  
Before transporting product containers:  
- Ensure there is adequate ventilation.  
- Ensure that containers are firmly secured.  
- Ensure valve is closed and not leaking.  
- Ensure valve outlet cap nut or plug (where provided) is correctly fitted.  
- Ensure valve protection device (where provided) is correctly fitted.

#### **14.7. Transport in bulk according to Annex II of Marpol and the IBC Code**

: Not applicable.

### **SECTION 15: Regulatory information**

#### **15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**

##### **EU-Regulations**

Restrictions on use : None.

Seveso Directive : 2012/18/EU (Seveso III) : Not covered.

##### **National regulations**

Regulatory reference : Ensure all national/local regulations are observed.

#### **15.2. Chemical safety assessment**

: A CSA does not need to be carried out for this product.

### **SECTION 16: Other information**

Indication of changes : Safety data sheet in accordance with commission regulation (EU) No 2020/878.

- Abbreviations and acronyms : ATE - Acute Toxicity Estimate  
CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008  
REACH - Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006  
EINECS - European Inventory of Existing Commercial Chemical Substances  
CAS# - Chemical Abstract Service number  
PPE - Personal Protection Equipment  
LC50 - Lethal Concentration to 50 % of a test population  
RMM - Risk Management Measures  
PBT - Persistent, Bioaccumulative and Toxic  
vPvB - Very Persistent and Very Bioaccumulative  
STOT- SE : Specific Target Organ Toxicity - Single Exposure  
CSA - Chemical Safety Assessment  
EN - European Standard  
UN - United Nations  
ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road  
IATA - International Air Transport Association  
IMDG code - International Maritime Dangerous Goods  
RID - Regulations concerning the International Carriage of Dangerous Goods by Rail  
WGK - Water Hazard Class  
STOT - RE : Specific Target Organ Toxicity - Repeated Exposure  
UFI : Unique Formula Identifier
- Training advice : The hazard of asphyxiation is often overlooked and must be stressed during operator training. For more guidance, refer to EIGA SL 01 "Dangers of Asphyxiation", downloadable at <http://www.eiga.eu>.
- Further information : Classification in accordance with the procedures and calculation methods of Regulation (EC) 1272/2008 (CLP).  
Key literature references and sources of data are maintained in EIGA doc 169 : 'Classification and Labelling Guide', downloadable at <http://www.Eiga.eu>.

Full text of H- and EUH-statements	
H280	Contains gas under pressure; may explode if heated.
Press. Gas (Liq.)	Gases under pressure : Liquefied gas

- DISCLAIMER OF LIABILITY : Before using this product in any new process or experiment, a thorough material compatibility and safety study should be carried out.  
Details given in this document are believed to be correct at the time of going to press.  
Whilst proper care has been taken in the preparation of this document, no liability for injury or damage resulting from its use can be accepted.